

CLAIMS

1. Motor vehicle with an internal combustion engine (12) and an auxiliary power supply device, which includes a fuel cell (50), wherein energy flows and/or media flows of the internal combustion engine (12) and the fuel cell (50) are coupled with one another, in which a cooling and heating circuit (10) is provided, characterized in that the cooling and heating circuit (10) features a first partial circuit (26) and a second partial circuit (44), of which the first (26) is allocated to the internal combustion engine (12) and the second (44) to the fuel cell (50), and that the two partial circuits (26, 44) are connected with one another via a supply line (62) having a supply valve (66) and via return line (64) having a return valve (68).
5
2. Motor vehicle according to Claim 1, characterized in that an engine oil heat exchanger (40) for the internal combustion engine (12) is arranged in the second partial circuit (44), to which an electrically driven engine oil pump (16) conveys the engine oil.
15
3. Motor vehicle according to one of the preceding claims, characterized in that a transmission oil heat exchanger (42) is provided in the second partial circuit (44), to which an electrical driven transmission oil pump (18) conveys transmission oil of a transmission (14).
20
4. Motor vehicle according to Claim 3, characterized in that engine oil heat exchanger (40) and the transmission oil heat exchanger (42) are connected in parallel.
25
5. Motor vehicle according to one of the preceding claims, characterized in that the second partial circuit (44) has an electrically driven auxiliary pump (46), which conveys the coolant through the second partial circuit (44).
6. Motor vehicle according to Claim 5, characterized in that a heater heat exchanger (54) is arranged in the second partial circuit (44), whose flow can be regulated via a heater valve (74) that can be triggered electrically.
30

7. Motor vehicle according to one of the preceding claims, characterized in that an auxiliary heater (52) is connected to the second partial circuit (44).
- 5 8. Motor vehicle according to one of the preceding claims, characterized in that the second partial circuit (44) includes a closed cooling system (88), which is operated with a de-ionized cooling medium and to which the fuel cell (50) and/or the auxiliary heater (52) are attached and in which the additional pump (46) is arranged, wherein the closed cooling system (88) is coupled with the coolant circuit of the engine oil heat exchanger (40) and/or the transmission oil heat
10 exchanger (42) via an intermediate heat exchanger (84).
9. Motor vehicle according to Claim 8, characterized in that the heater heat exchanger (54) is allocated to the first partial circuit (26) and its coolant circuit is coupled with the closed cooling system (88) of the second partial circuit (44) via a second
15 intermediate heart exchanger (86).